From time to time vertical regenerators are designed without regard to the fundamental principles that a current of hot gases in cooling should pass downward, and a current of air or gas which

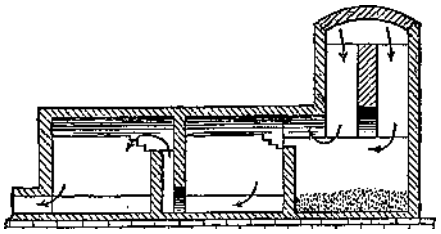

FIG. 51.

is being heated should pass upward. Figs. 52 and 53 show such construction.

In each of these cases the current of gases changes its direction of flow from upward to downward, or *vice versa.* Thus in Fig. 52 the gases which are giving off heat enter at the top and flow to the

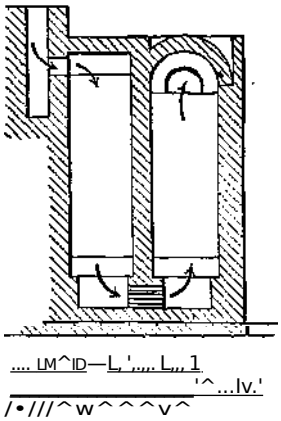

FIG. 52.

FIG. 53.

bottom of the checkerwork (in the correct manner) and then turn and flow from the bottom to the top of the second chamber (in an incorrect manner); in Fig. 53 the gases which are giving off heat enter at the bottom and rise to the top (in the incorrect way), then they flow downward (in the correct manner).